

REMARKS

Claims 1, 3, 4 and 8-21 are now pending in the present application. Claims 1, 3, 8-13 and 18 have been amended, claims 2 and 5-7 have been canceled and claim 21 has been added. Claims 1, 10, 13 and 18 are independent. Reconsideration of this application, as amended, is respectfully requested.

Information Disclosure Statement

Applicants acknowledge receipt of the initialed copy of the PTO-1449 dated September 3, 2002.

In the Examiner's Office Action dated October 10, 2003, the Examiner has relied on the Onishi et al. reference at paragraph 5 of the Examiner's Office Action. However, the Onishi et al. reference was not cited on the PTO-892 Form attached to the Examiner's Office Action. Applicants representative contacted the Examiner and the Examiner informed Applicants representative that the patent number for the Onishi et al. reference is USPN 4,545,428. In addition, Applicants received a copy of Muller, USPN 4,154,003 attached to the Muller, USPN 4,204,339 reference. However, the Muller '003 reference was also not cited on the PTO-892 form attached to the Examiner's Office Action.

In view of the above, a PTO-1449 Form has been provided for the Examiner's consideration. The PTO-1449 Form includes the Onishi et al. and Muller '003 references listed thereon. It is requested that the Examiner initial the PTO-1449 Form and forward a

copy with the next Office Communication. In addition, it is believed that no fee is required for the submission of this PTO-1449 Form, since the Examiner has brought these references to Applicants' attention. The PTO-1449 Form has only been provided for the Examiner's convenience.

Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1-6 and 20 stand rejected under 35 U.S.C. § 102(b) as being clearly anticipated by either Muller, USPN 4,204,339, Geldhof et al., USPN 2,843,943 or Hubbard, USPN 3,121,000. Claims 1-6, 19 and 20 stand rejected under 35 U.S.C. § 102(e) as being clearly being anticipated by Fukumoto et al., USPN 6,282,928. Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) being unpatentable over either Muller, Geldhof et al., Hubbard or Fukumoto et al. '928 in view of either Zohler, USPN 4,866,830 or Onishi et al., USPN 4,545,428. Claims 9 and 17 stand rejected under 35 U.S.C. § 103(a) being unpatentable over Muller, Geldhof et al., Hubbard or Fukumoto et al. in view of UK 2,075,559. Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over either Muller, Goldhof et al., Hubbard or Fukumoto et al. in view of Newton, USPN 3,837,396. These rejections are respectfully traversed.

At the outset, it is respectfully pointed out that independent claim 1 has been amended to include the subject matter of dependent claim 7, which has been canceled. Specifically, independent claim 1 has been amended to recite "the at least one circulation

duct has a plurality of grooves provided at inner wall surfaces of the at least one circulation duct." At paragraph 5 of the Examiner's Office Action, the Examiner recognizes that the Muller, Geldhof et al., Hubbard and Fukumoto et al. '928 references fail to disclose this aspect of the present invention. However, the Examiner relies on the Zohler and Onishi et al. references in order to modify the Muller, Geldhof et al., Hubbard and Fukumoto et al. '928 references in order to arrive at the present invention. Applicants respectfully submit that the modification proposed by the Examiner would not have been obvious to one having ordinary skill in the art. Each of the Muller, Geldhof et al., Hubbard and Fukumoto et al. '928 references will now be discussed with specific emphasis directed to the Examiner's modification of these references in view of the Zohler and Onishi et al. references.

With regard to the Muller reference, this reference is directed to a tumbler washing and drying machine. Referring to the figure of this reference, Muller discloses a liquid container 10 having a drum 14 rotatably mounted therein. A recirculating air duct 26 receives air from the drum 14, dehumidifies the air and recirculates the dehumidified air back into the liquid container 10. However, the recirculating air duct does not include "a plurality of grooves provided at inner wall surfaces" as recited in independent claim 1 of the present invention. Accordingly, this reference fails to anticipate independent claim 1 of the present invention.

With regard to the Geldhof et al. reference, this reference discloses a combined washer and dryer having separate washing and drying compartments 11 and 12,

respectively. The washing and drying compartments 11, 12 are separated from each other by a control compartment 13. In view of this, this reference fails to disclose a "a second tub disposed in the first tub" as recited in independent claim 1 of the present invention. In addition, this reference fails to disclose "a plurality of grooves provided at inner wall surfaces" of a circulation duct as recited in independent claim 1 of the present invention. Accordingly, the Geldhof et al. reference also fails to anticipate independent claim 1 of the present invention.

With regard to the Hubbard reference relied on by the Examiner, this reference is directed to a laundry dryer or washer-dryer. Referring to FIG. 2 of this reference, a channel 12 is provided to receive air from a drum 27, dehumidify the air and recirculate the dehumidified air back into the drum 27. However, this reference also fails to disclose "a plurality of grooves provided at inner wall surfaces" of the channel 12 as recited in independent claim 1 of the present invention. Accordingly, the Hubbard reference also fails to anticipate independent claim 1 of the present invention.

With regard to the Fukumoto et al. reference relied on by the Examiner, this reference is directed to an electric washer-dryer. Referring to FIG. 1 of this reference, a heat exchanger 31 receives air from an inner tub 13, dehumidifies the air and recirculates the dehumidifier air back into the inner tub 13. However, this reference fails to disclose "a water supplying duct for supplying external water to the at least one circulation duct to further dehumidify the air in the at least one circulation duct" and "a plurality of grooves

provided at inner wall surfaces of the at least one circulation duct" as recited in independent claim 1 of the present invention.

Referring again to FIG. 1 of the Fukumoto et al. '928 reference, a water discharge-switching valve 30 is illustrated as being located along the air flow path in the heat exchanger 31. However, this water discharge-switching valve 30 does not supply external water to the heat exchanger 31, it only opens the passageway to the heat exchanger 31 when the washer-dryer is in the drying condition. Referring to column 4, lines 43-49 of Fukumoto et al. '928, the water discharge-switching valve 30 is disclosed as being closed during the washing process and opened at the spin-drying process. In view of this, no external water enters through the water discharge-switching valve 30. The water discharge-switching valve 30 is only provided to open the passageway to the heat exchanger 31 in order to allow for drainage of water within the outer tub 14 after a washing operation so that the water can drain out of the drain hole 33.

For the above reasons, Applicants submit that the Fukumoto et al. reference also fails to anticipate the independent claims of the present invention.

With specific regard to the Examiner's reliance on the Zohler and Onishi et al. references, as mentioned above, Applicants respectfully submit that the modification proposed by the Examiner would not have been obvious to one having ordinary skill in the art. Both the Zohler and Onishi et al. references are directed to heat transfer tubes for an air conditioning system. In view of this, the heat transfer tubes receive refrigerant therein

and the grooves on the inside of the heat transfer tubes are provided to increase the heat transfer efficiency from the refrigerant to heat transfer fins located on an outside of the heat transfer tubes. In the present invention; however, an air circulation duct includes a plurality of grooves provided at inner wall surfaces thereof. In addition, the circulation duct includes water supplied therein from the water supplying duct as well as air circulating from the inner tub 5. Since the air from the inner tub 5 is hot and humid, upon making contact with the water inside the air circulation duct, a heat exchange occurs between the water and the hot humid air. This process condenses the water vapors in the hot humid air, allowing the condensed water to drain out of the washing machine. The provision of the grooves inside the circulation duct reduces the flow speed of the water within the circulation duct to prolong the heat exchanging time between the water and the hot humid air. Applicants submit that this is entirely different from the refrigeration systems of Zohler and Onishi et al., where refrigerant is the only medium flowing within the heat transfer tubes and the heat transfer is occurring between the refrigerant and the heat transfer tube and not between water and air as in the presently claimed invention. In view of this, Applicants submit that the Zohler and Onishi et al. references are non-analogous art. One having ordinary skill in the washing machine art would not look to refrigeration systems in order to obtain a solution to problems associated with the washing machine art. In view of this, Applicants submit that the Examiner's modification of the Muller, Geldhof et al., Hubbard and Fukumoto et al. '928 references is improper and should be withdrawn.

In addition to the above, it should be noted that the Geldhof et al. and Fukumoto et al. references also fail to disclose a second tub disposed in the first tub and a water supplying duct, respectively, as recited in independent claim 1 of the present invention. Accordingly, these references are deficient for these additional reasons. In addition, in Hubbard, the channel 12 is entirely different from the heat transfer tubes of the Zohler and Onishi et al. references. The channel 12 of Hubbard is a rectangular air channel, while the heat transfer tubes of Zohler and Onishi et al. are round. Applicants submit that this additional fact further supports the above position that the Zohler and Onishi et al. references are non-analogous to the presently claimed invention.

With regard to dependent claims 3, 4, 8, 9, 11, 12, 17, 19 and 20, Applicants respectfully submit that these claims are allowable due to their dependence upon allowable independent claim 1, as well as due to the additional recitations in these claims.

With regard to the Examiner's reliance on the UK '559 and Newton references, these references have been used to disclose an external air supply and heat transfer fins, respectively. These references also fail to disclose "a plurality of grooves provided at inner wall surfaces" of a circulation duct as recited in independent claim 1. Accordingly, these references fail to make up for the deficiencies of Muller, Geldhof et al., Hubbard and Fukumoto et al. '928.

In view of the above amendments and remarks, Applicants respectfully submit that claims 1, 3, 4, 8, 9, 11, 12, 17, 19 and 20 clearly define the present invention over the

references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

Allowable Subject Matter

Claims 10, 13-16 and 18 have been objected to by the Examiner as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants greatly appreciate the indication of allowable subject matter by the Examiner. As the Examiner will note, dependent claims 10, 13 and 18 have been rewritten in independent form to include all of the limitations of original independent claim 1 and any intervening claims. Accordingly, claims 10, 13 and 18 should be in condition for allowance. In addition, since dependent claims 14-16 depend on independent claim 13, these claims should also be in condition for allowance.

Additional Claims

Additional claim 21 has been added for the Examiner's consideration. Applicants respectfully submit that this claim is allowable due to its dependence upon allowable independent claim 1, as well as due to the additional recitation in this claim.

Favorable consideration and allowance of additional 21 are respectfully requested.

CONCLUSION

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but merely to show the state-of- the-art, no further comments are deemed necessary with respect thereto.

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.


It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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(Use several sheets if necessary)

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	4,154,003	1979-05-15	Müller			
	4,545,428	1985-10-08	Onishi et al.			

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FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION	
						YES	NO

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OTHER DOCUMENTS

(Include Name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.